

WHAT IS CLAIMED IS:

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1. In a computing device, a system comprising:
  - a modeling engine, the modeling engine connected to a user interface;
  - 5 a layout engine, the layout engine connected to the modeling engine and configured to execute an automatic layout process that automatically lays out modeling elements; and
  - a set of at least one interface connecting the modeling engine to the layout engine, the set including at least one
  - 10 interface through which the modeling engine communicates with the layout engine to provide user interaction with the automatic layout process other than to cancel the automatic layout process.
- 15 2. The system of claim 1 wherein the modeling engine communicates with the layout engine by calls from the layout engine via the interface.
- 20 3. The system of claim 1 wherein the modeling engine communicates with the layout engine via events raised by the layout engine.

4. The system of claim 1 wherein the modeling engine communicates with the layout engine to provide a progress indicator to the user.

5 5. The system of claim 1 wherein the modeling engine communicates with the layout engine to obtain status information from the layout engine.

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10 6. The system of claim 1 wherein the modeling engine communicates with the layout engine to interrupt the automatic layout process.

15 7. The system of claim 6 wherein the modeling engine communicates with the layout engine to preserve state of the automatic layout process.

20 8. The system of claim 7 wherein the modeling engine communicates with the layout engine to preserve the state of the automatic layout process by passing an interface thereto.

9. The system of claim 7 wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process, and to resume the automatic layout process.

10. The system of claim 9 wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process by passing an interface thereto.

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11. The system of claim 1 wherein the layout engine comprises a pluggable software component.

12. The system of claim 1 wherein the modeling engine comprises a pluggable software component.

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13. The system of claim 1 wherein the modeling engine communicates with the layout engine to obtain capability information from the layout engine.

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14. A computer-implemented method, comprising:  
starting a layout engine to lay out model elements;  
receiving information from the layout engine indicating  
that it can be safely interrupted; and  
interrupting the layout engine based on the information.

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15. The method of claim 14 wherein receiving information comprises receiving an event.

16. The method of claim 14 further comprising, receiving a request to interrupt the layout engine, and waiting for the information from the layout engine indicating that it can be safely interrupted.

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17. The method of claim 14 wherein the request comprises a user action.

18. A computer computer-readable medium having computer-executable instructions for performing the method of claim 14.

19. A computer-implemented method, comprising:  
starting a layout engine to lay out model elements;  
providing information to the layout engine by which the  
layout engine preserves state information;  
interrupting the layout engine;  
providing information to the layout engine by which the  
layout engine restores state from the state information; and  
restarting the layout engine from the restored state.

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20. The method of claim 19 wherein starting the layout engine includes communicating information to the layout engine through an interface thereof.

21. The method of claim 19 wherein providing information to the layout engine by which the layout engine preserves state information includes passing an interface to the layout engine.

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22. The method of claim 19 wherein interrupting the layout engine includes communicating information to the layout engine through an interface thereof.

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23. The method of claim 22 further comprising, receiving information from the layout engine indicating that it can be safely interrupted.

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24. The method of claim 19 wherein providing information to the layout engine by which the layout engine restores state information includes passing an interface to the layout engine.

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25. The method of claim 19 further comprising, receiving events from the layout engine.

26. The method of claim 25 wherein at least one of the events includes progress information.

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27. The method of claim 19 further comprising, calling the layout engine to receive status information therefrom.

28. The method of claim 19 wherein the status  
5 information includes data corresponding to time remaining to  
A( complete laying out the model elements.

29. A computer computer-readable medium having computer-executable instructions for performing the method of claim 19.

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